Bigelow. Mr. Coleman has reinforced the study of the structure of the various types by accounts of the physiology of the different organs, the economic importance of the animal, and the methods of collecting.

Part III, "Human Biology," 164 pages, also by Mr. Coleman, fills a need which has only recently been recognized by textbook writers. We would compare this part of the volume to *The Human Mechanism,* by Theodore Hough and W. T. Sedgwick. The following is the order of subjects: The skin and kidneys, the skeleton, the muscles, the circulation, the respiration, food and digestion, the nervous system, the senses, bacteria, and sanitation. At the beginning of each chapter are helpful experiments introducing the student to the actual physiological processes to be studied.

A quotation from the preface will give a good idea of the arrangement of the subjects advised by the authors: "If the course in biology begins in the fall (with the school year), it may be well to study plant biology two days in the week and animal biology three days, until midwinter; when outdoor material becomes scarce, human biology may be followed five days in the week; in spring, plants may be studied three days and animals two days." The book is profusely illustrated in the text and also contains four colored plates which are of value for the proper teaching of biology.

R. W. HEGNER

THE UNIVERSITY OF MICHIGAN

Elementary Algebra. By J. W. A. YOUNG, PH.D., AND LAMBERT L. JACKSON, PH.D. New York: D. Appleton & Co., 1908. Pp. 438.

During the past few years there has been no lack of criticism of the traditional course in algebra. It has been pointed out with the utmost clearness that the course is unsuited to immature boys and girls just entering the high school, that it is too abstract, and that it lacks all connection with real life. In response to this sentiment, some slight modifications have appeared in many of the recent textbooks mainly in the introduction of graphical methods and in the elimination of certain topics. The book under consideration represents another step toward the new algebra.

Although the authors were hampered by the necessity of providing for the prevailing requirements for admission to college, they have made a book which, in many respects, appears new. It is evidently planned with due regard for the capacity of the high-school student and with the purpose of convincing him from the beginning that algebra is good for something.

The first few chapters are devoted to an interesting transition from arithmetic to algebra, in which the value of algebraic symbols for making statements in abbreviated form is explained, and the use of the equation is illustrated by simple problems. The negative number is not introduced until chap. iv.

New topics are as a rule presented inductively. Various simple examples, often relating to arithmetical data, are first considered, from which a general relation is inferred. This is followed by a variety of oral exercises and finally problems requiring written work. At the end of each chapter is a summary.

The arrangement of topics suggests the "Spiral" course in arithmetic.

The equation appears again and again, each time receiving more comprehensive treatment. Factoring is first considered in connection with multiplication. Later a special chapter is devoted to the subject, in which the facts already learned are summarized and the methods extended. Other topics receiving attention at more than one stage in the development of the course are ratio and proportion and variation. There is no separate chapter on graphs, but graphical methods are introduced freely. The arrangement lends itself readily to a distribution of the work over two or more years. Indeed, such treatment is doubtless expected by the authors for, while the first chapters can be readily understood by eighth-grade pupils, the treatment of the latter part of the book is suited to students of much greater maturity.

The most interesting feature of the book is the problems. One misses the familiar transactions of A, B, and C, and the time-honored conversations between father and son in regard to their ages. Instead, we have statistics of area, population, exports, and crops, composition of foods, and geographical data. There are also many exercises drawn from physics and geometry. A few problems of historic interest are given in supplementary sections. Many of the problems are, of course, not real, that is, not of the sort requiring solution by algebraic methods. They are manufactured—like the problems about sheep and ages—to illustrate algebraic processes. Nevertheless the book contains an unusually large number of problems which are drawn from real life.

WILLIAM E. STARK

THE ETHICAL CULTURE SCHOOL
NEW YORK CITY

High-School Manual-Training Course in Wood Work. By SAMUEL E. RITCHEY. New York: American Book Co., 1905. Pp. 223.

This is a book of 223 double-column pages. It attempts to cover the four subjects of joinery, turning, cabinetwork, and patternwork. The author states that the course as given in the text has been in use, in its entirety, in his classes for several years, and that it was originally prepared to save the time of the pupil by avoiding much of the writing in his notebooks.

In addition to the text on the above subjects is a section on equipment, also a chapter on wood, giving in a brief manner some fragmentary facts, and a little fiction, in regard to the common woods and their uses.

From the information furnished in regard to the equipment and supplies and the amount of work done by the pupils as indicated by other pages of the book, it appears that in the author's school the use of this course requires a large amount of equipment and materials for very limited results.

As is common with books of this class the attempt is made to show the methods of tool usage by means of sketches. These, as a rule, are clear and evidently show what the author intended, although good tool usage would conflict in many cases with the methods shown.

In treating the subject of wood turning the author evidently had in mind the making of a few forms for exhibition rather than the teaching of anything which would aid the pupil, should he ever attempt to do commercial work. This does not appear to be a proper course for school use when correct methods